IUAT Software v1.15
Installation and User Manual

Revision 1.0

29 December 2011

COPYRIGHT © Thaicom PLC 2010
All rights reserved

TABLE OF CONTENTS

TABLE OF CONTENTS 2

LIST OF FIGURES 3

LIST OF TABLES 4

1 SOFTWARE INSTALLATION 5

2 FREQUENCY PROFILE SELECTION 7

3 IPSTAR USER TERMINAL SETUP 12

4 RUNNING IUAT PROGRAM 13

5 ALL FEATURES IN IUAT VERSION 1.15 31

6 TROUBLESHOOTING 40

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

LIST OF FIGURES

Figure 1 First page of the installation wizard 5
Figure 2 Specify the installation folder 5
Figure 3 Installation option 6
Figure 4 Ready to install the iUAT program 6
Figure 5 The installation is completed 7
Figure 6 The shortcut of iUAT program 7
Figure 7 Frequency profile dialog 8
Figure 8 Authentication page 8
Figure 9 About iUAT dialog 9
Figure 10 iUAT log information dialog 9
Figure 11 Frequency profile selection 10
Figure 12 Confirm to load new profile 10
Figure 13 New profile is completely loaded 11
Figure 14 iUAT option dialog 11
Figure 15 iUAT option dialog 12
Figure 16 IPSTAR User Terminal setup 12
Figure 17 Step 1 Authentication page 13
Figure 18 Installation mode 14
Figure 19 ODU information page 15
Figure 20 User Terminal information page 15
Figure 17 iUAT starting page 16
Figure 18 Antenna alignment page 17
Figure 19 Color configuration 17
Figure 20 TOLL scanning page 18
Figure 21 Waiting for TOLL synchronization 19
Figure 22 iUAT is searching for UAT channel 20
Figure 23 iUAT is searching for logon frequency 21
Figure 24 iUAT is calibrating the transmitted power 22
Figure 25 Polarization alignment page 23
Figure 26 UAT quality control dialog 23
Figure 27 iUAT Report page 24
Figure 28 List of existing jobs which pass reference cable mode 24
Figure 29 ODU information page for actual length cable mode 25
Figure 30: Highlight of Rx external attenuator flowchart 26
Figure 31: [ERR-20] message 27
Figure 32: How Rx external attenuator is connected with Sat Rx port of IDU 27
Figure 33: Highlight of Tx external attenuator flowchart 28
Figure 34: [ERR-26] message 29
Figure 35: How remove Tx external attenuator with Sat Tx of IDU 29
Figure 36 iUAT is waiting for the confirmation of the UAT result 30
Figure 37 The confirmation is successful 31
Figure 38 Resizable dialog 32
Figure 39 Add External Tx attenuator warning 33
Figure 40 Program is terminated for external Tx attenuator insertion 34
Figure 41 External Tx attenuator installation 34
Figure 42 Reminder message to install external Tx attenuator 35
Figure 47 IUAT option dialog 35
Figure 48 iUAT check UT's configuration 36
Figure 48 iUAT skip toll scanning 37
Figure 47 Example case without median filter 38
Figure 51 Example case with median filter 38
Figure 52 Expand TOLL tracking frequency range 39

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

LIST OF TABLES

Table 1 iUAT Software v1.15 Error Codes 40

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

1 SOFTWARE INSTALLATION

1. Unzip the installation file.
2. Run the installation program by doubled-click on the "setup.exe" file. The installation wizard dialog will appear (Figure 1), click "Next" to continue.

iUAT1.15
Welcome to the iUAT1.15 Setup Wizard
The installer will guide you through the steps required to install iUAT1.15 on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

Figure 1 First page of the installation wizard

3. You can specify the installation folder by click "Browse" button and select new location (Figure 2), or click "Next" to use the default folder.

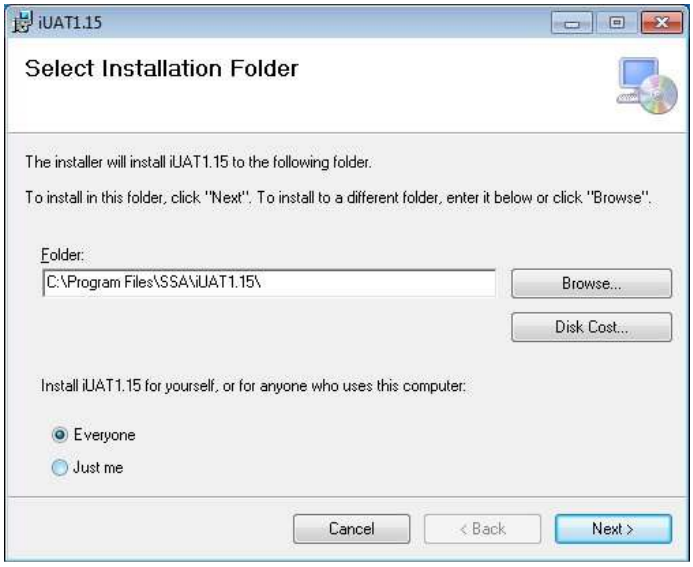
iUAT1.15
Select Installation Folder
The installer will install iUAT1.15 to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\SSA\iUAT1.15\
Browse...
Disk Cost...
Install iUAT1.15 for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

Figure 2 Specify the installation folder

4. You will be asked to select installation option (Figure 3). After selected, click "Next" to proceed.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

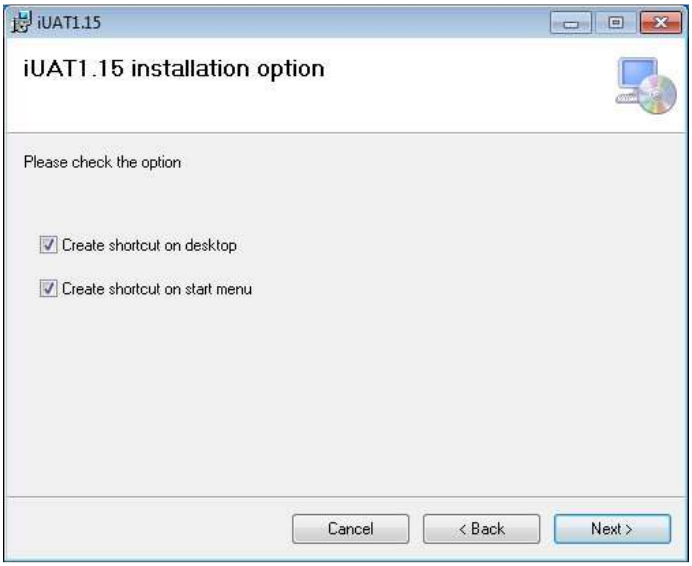

Figure 3 Installation option

5. A confirmation page will appear, click "Next" to start the installation (Figure 4).

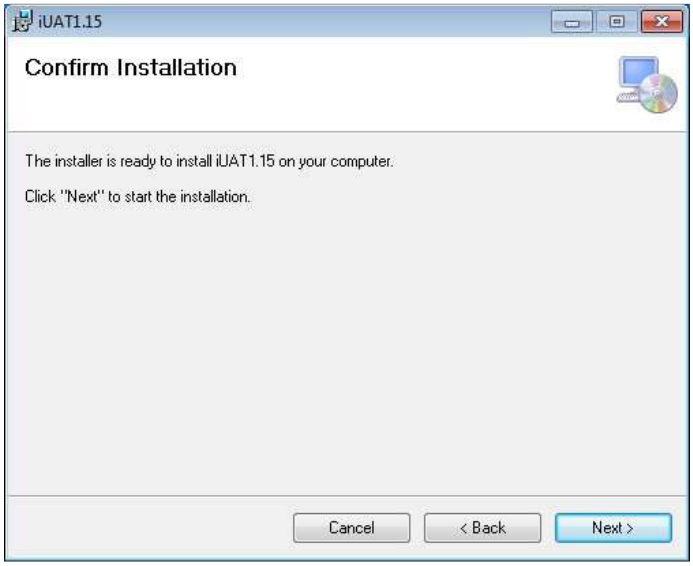
iUAT1.15
Confirm Installation
The installer is ready to install iUAT1.15 on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

Figure 4 Ready to install the iUAT program

6. Program will start installation process. When installation is complete, click "Close" to exit from the program (Figure 5).

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

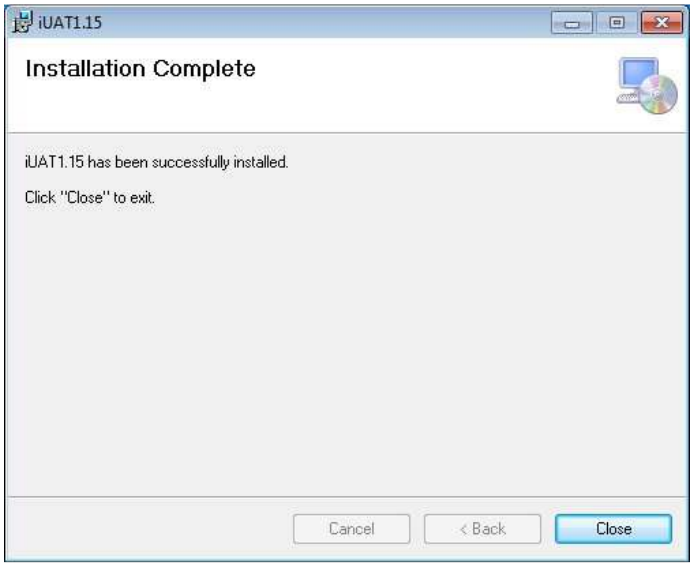

Figure 5 The installation is completed

After the installation is complete, by default the shortcut of iUAT program will be created on the desktop (Figure 6).

Figure 6 The shortcut of iUAT program

2 FREQUENCY PROFILE SELECTION

1. Double click on the iUAT icon on the desktop to start the program.

2. At the first times, you will see the frequency profile dialog. Select to the appropriate frequency profile to match the geographic location of the installation site.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

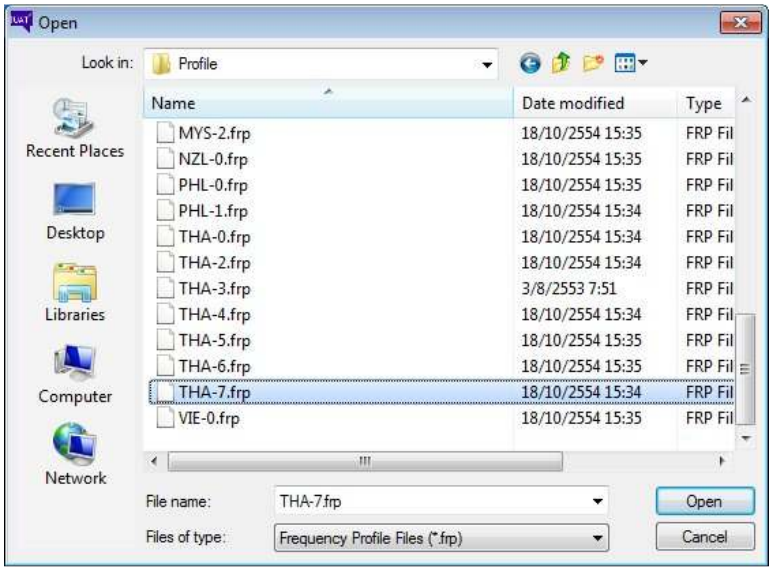

Figure 7 Frequency profile dialog

3. You will see the Authentication page appears as Figure 8. The current Frequency Profile selected is highlighted in red color.

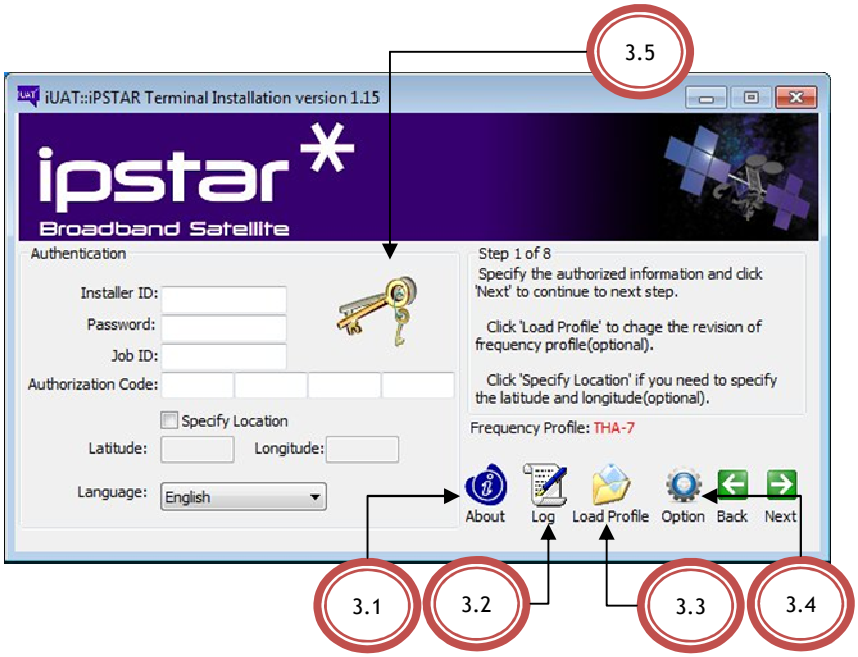

Figure 8 Authentication page

3.1. Click on "About" icon on the dialog to see information.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Figure 9 About iUAT dialog

3.2. Click on "Log" icon on the dialog to see the previous recorded IUAT.

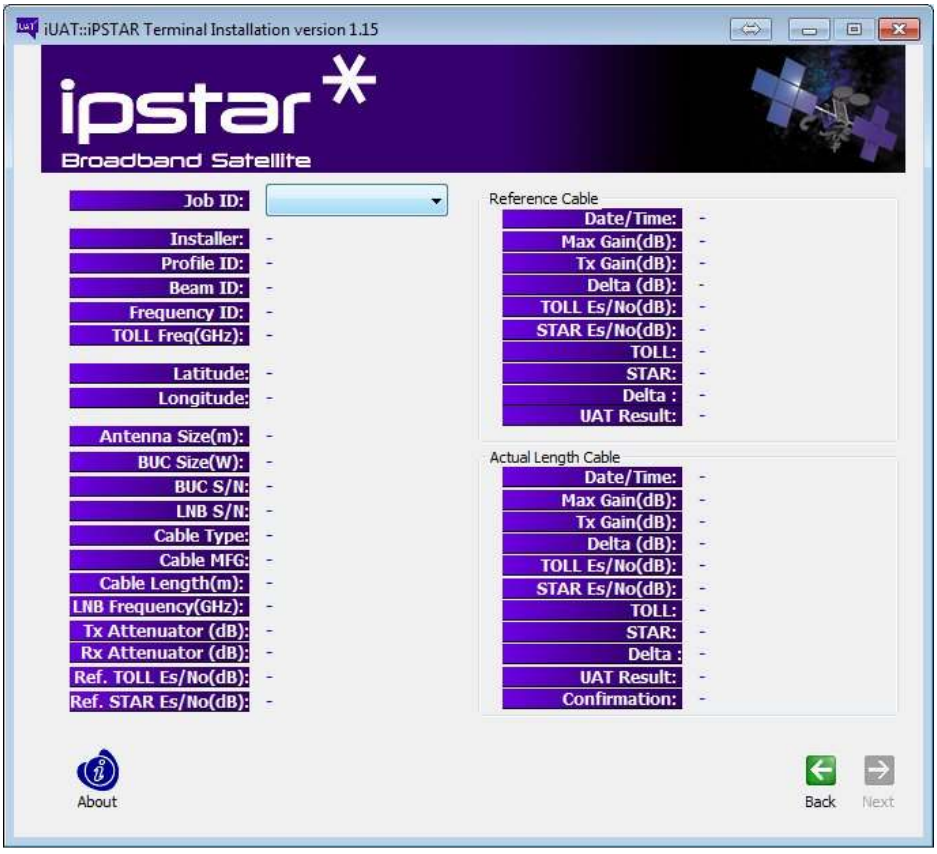

Figure 10 iUAT log information dialog

3.3. Click on "Load Profile" icon on the dialog to change a new frequency profile.

- A dialog box will appear for you to specify the location of frequency profile (Figure 11).

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

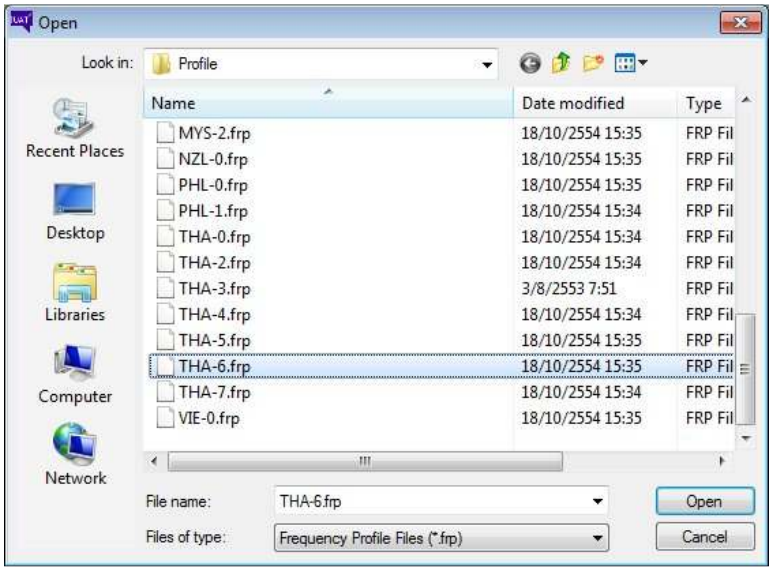

Figure 11 Frequency profile selection

- Select the frequency profile to be used by clicking on the file name, then click "Open" button at the bottom of the dialog. A confirmation dialog will be shown as in Figure 12. Click "Yes" to continue

Figure 12 Confirm to load new profile

- Once the frequency profile is updated, a dialog will appear as in Figure 13. Click "OK" to close the iUAT program. Now the new frequency profile is ready for use. Restart the iUAT program.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

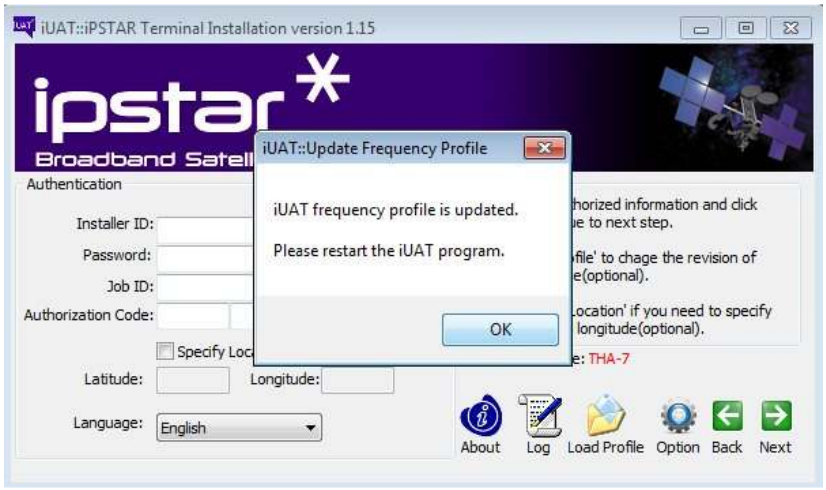

Figure 13 New profile is completely loaded

3.4. Click on "Option" icon on the dialog to change option.

Please refer All Features in iUAT Version 1.15

Figure 14 iUAT option dialog

3.5. Click on "Keys" icon on the dialog to recover the last keyed.

After click "Keys", the last keyed information will be appeared.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Figure 15 iUAT option dialog

3 IPSTAR USER TERMINAL SETUP

1. Connect the User Terminal with the ODU (the TX port to the BUC and the RX port to the LNB). When starting the installation, you will need to insert a TX attenuator in between the BUC and the TX port as shown in Figure 20.
2. Connect the User Terminal using a UTP cross-cable to the Ethernet port on the computer's LAN card.
3. The default IP address of the User Terminal is 192.168.5.100. However, you may need to check with your SP if the User Terminal has been configured with another IP address.
4. Make sure that your computer IP address is set to the same network as the User Terminal.

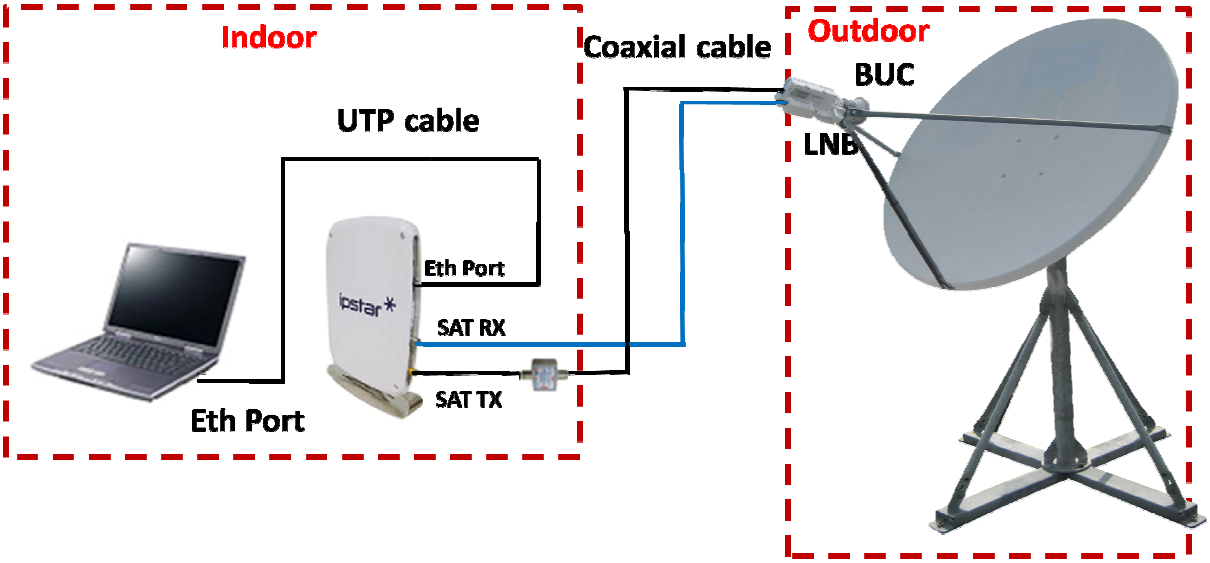

Figure 16 IPSTAR User Terminal setup

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

4 RUNNING IUAT PROGRAM

- Double click on the iUAT icon on the desktop to start the program.
- There are 8 steps in iUAT program.

Step 1: Authentication

At the first step (Figure 21), you need to specify the information to get authorization to install IPSTAR User Terminal. Below are the details of authentication information:

- Installer ID: the ID of the installer who has authorization.
- Password: password for the installer ID.
- Job ID: the 8 digits hexadecimal number to identify the job as in the Job order.
- Authorization Code: the 20 characters authorization code in the Job order.

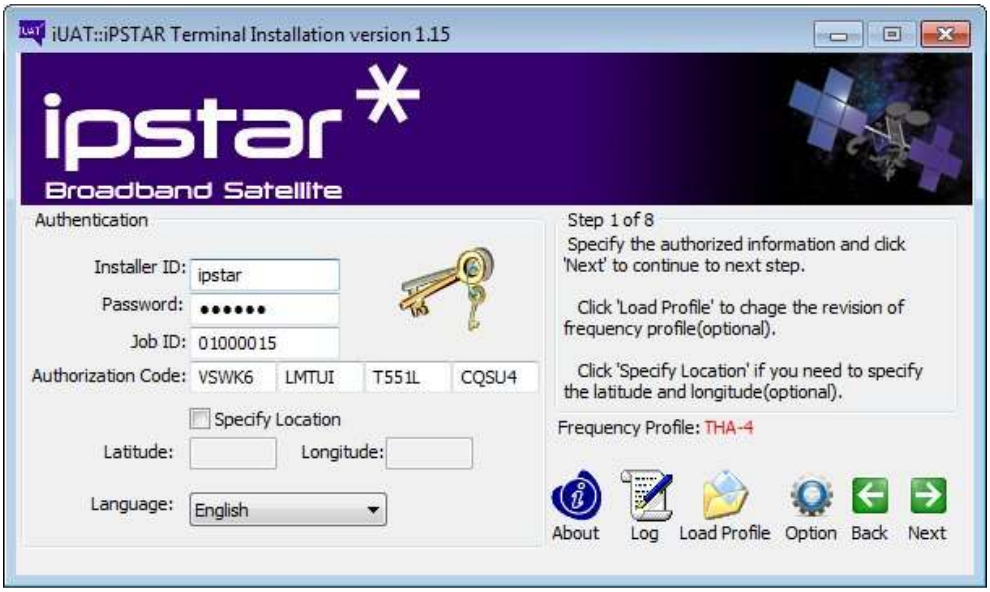

Figure 17 Step 1 Authentication page

Enter the authentication information and click "Next" to continue. If you do not have the authentication information, you will need to contact your SP for assistance.

On this authentication page, you will also be able to optionally enter or select below information.

- Latitude/Longitude: Enter the updated information of geographical location in case it is different from the Job order.
- Language: Select language of iUAT program.

If the frequency profile does not match with your geographical location, click the "Load Profile" button to load the new one as described in Section 2. You may need to consult your SP to get the appropriate frequency profile.

Choose installation Mode

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

After Step 1 authentication is complete. the popup dialog will ask for the Installation Mode you want to do (Figure 12).

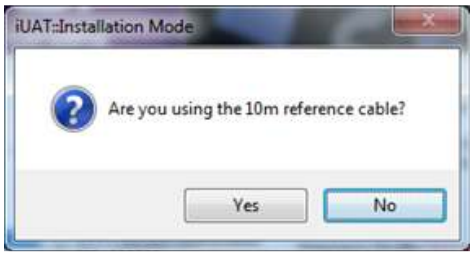

Figure 18 Installation mode

iUAT program provides 2 modes for the installation of IPSTAR UT.

- Reference cable (10m) Mode

  In this mode, the User Terminal is connected to the BUC/LNB with the 10 meters reference cables and the installer has to peak the antenna pointing and polarization. After finishing iUAT program in reference mode, the installer will have to run the program again in actual mode to complete installation.

- Actual cable Mode

  This mode is to connect the User Terminal to the BUC/LNB with the actual length cables. At this mode, the maximum power calibration is performed. At the end, the test results are submitted to the UAT QC for the approval and record.

To proceed the installation,

- click "Yes" to continue with the installation in the 10m. reference cable mode,
- or click "No" to go to actual cable mode.

Note that in whichever mode you select, you will have to finish the 8 steps of iUAT in order to complete the program.

Step 2: Specify the ODU Informations

Enter the antenna and ODU information as required in this page. Then click "Next" to continue (Figure 23).

If you are using LNB with Lo frequency different from 10.6 GHz, you will need to uncheck "Default" box and change the LNB local frequency to match your LNB frequency.

If you install TX attenuator please specify the attenuation value in dB.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

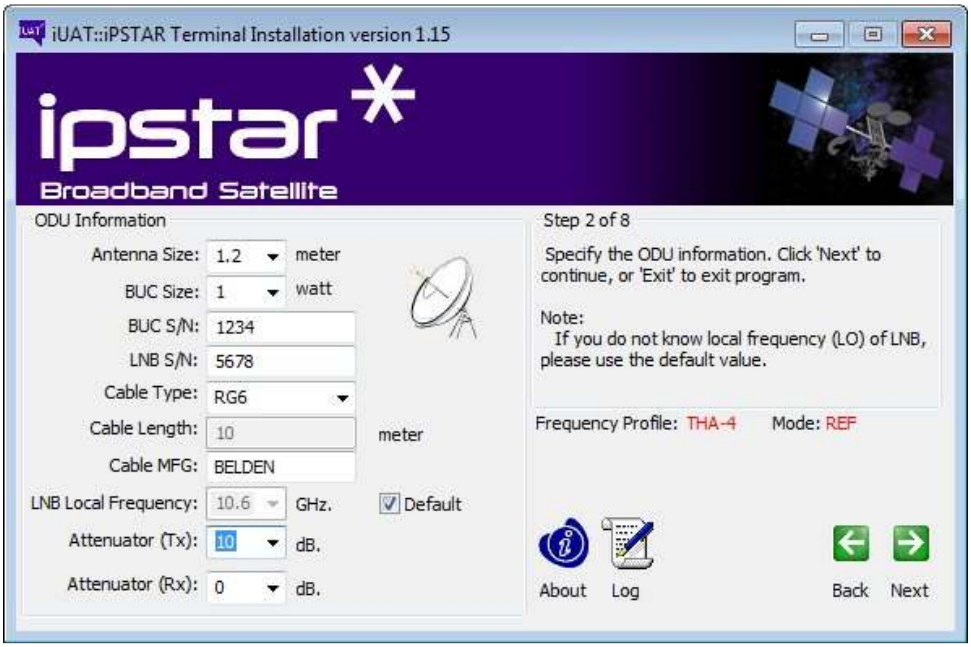

Figure 19 ODU information page

Step 3: Terminal Connecting

Specify the User Terminal IP address and Logon power (default value is -20 dB), then click "Next" to continue (Figure 24).

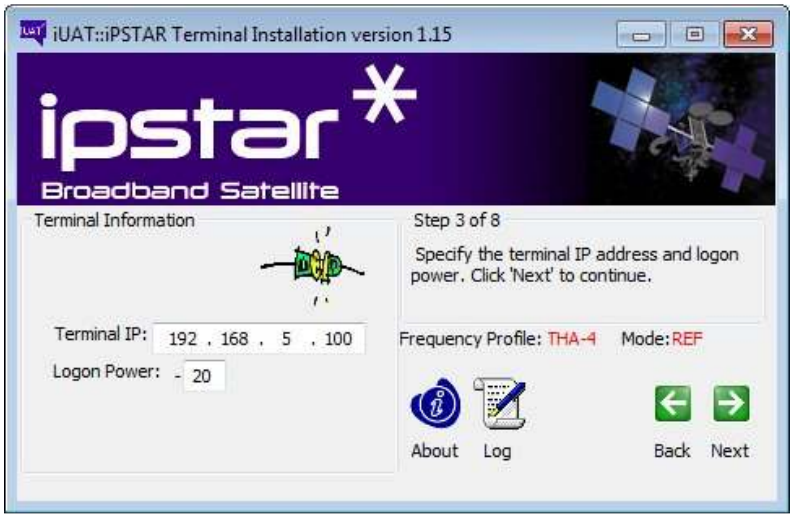

Figure 20 User Terminal information page

The UAT process will start within 70 seconds. The program will communicate to the User Terminal, save RF configuration and reboot the User Terminal (hardware initialization) (Figure 17).

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Figure 21 iUAT starting page

Step 4: Antenna Alignment

On the antenna alignment page (Figure 18), the dialog will show the current TOLL signal strength (Rx Level), Maximum signal strength attained, TOLL Es/No , Beam ID and Frequency ID. The Beam ID and Frequency ID indicate the selected beam and frequency as specified in the frequency profile.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

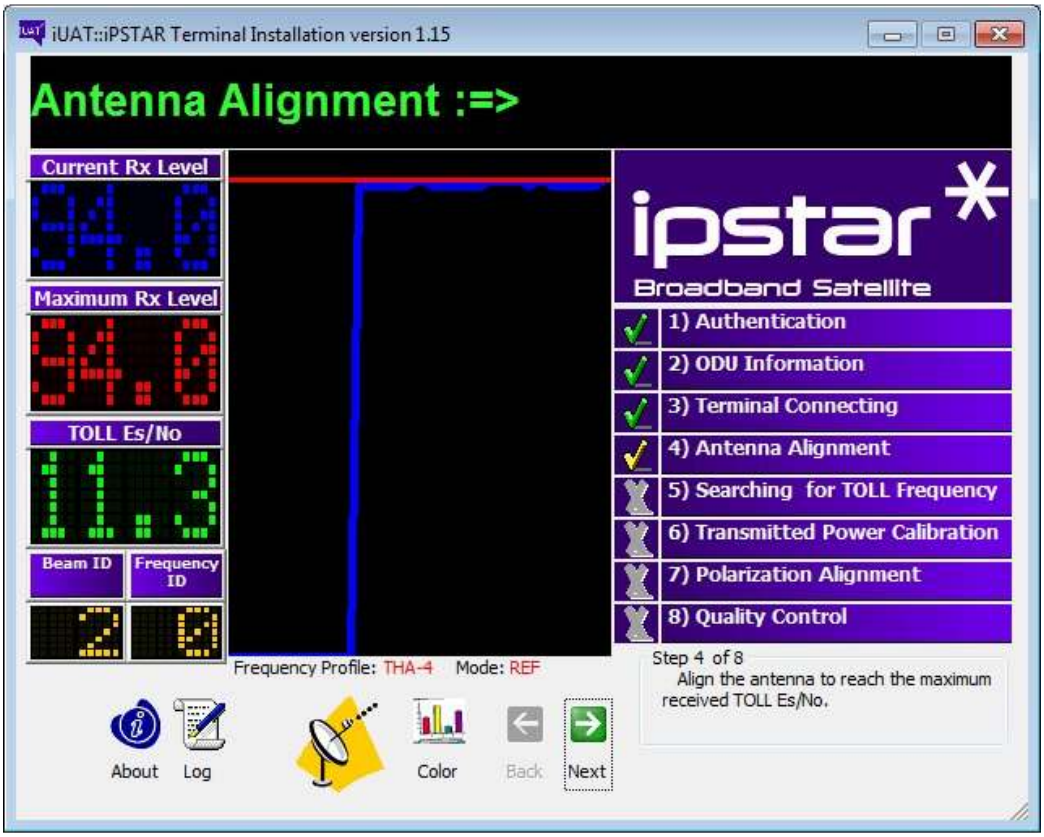

Figure 22 Antenna alignment page

At this point you should try to adjust the antenna alignment (Azimuth, Elevation, Polarization) to reach the maximum TOLL EsNo. After complete, click "Next" to continue to Step 5.

Note: For better readability depending on the lighting environment, you may change color of displayed text in this step by click "Color" icon at the bottom of the dialog box.

Figure 23 Color configuration

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Step 5: Seaching for Available Frequency

The iUAT will search for the best available TOLL frequency (Figure 20).

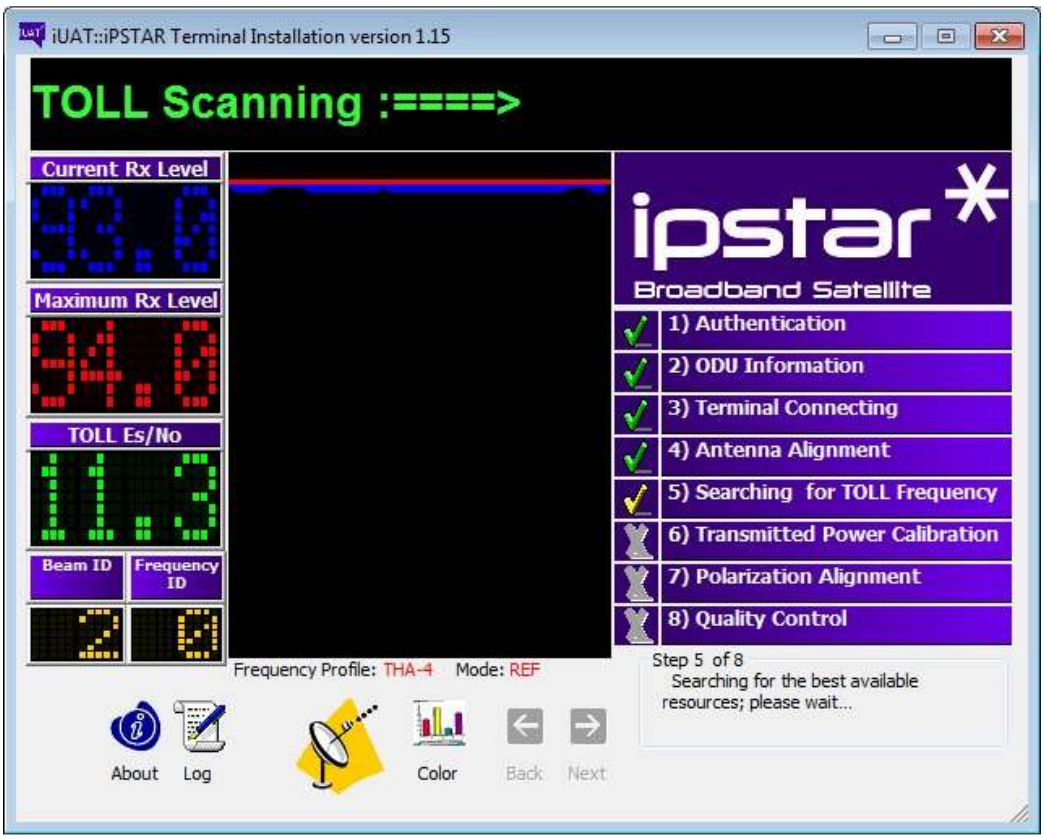

Figure 24 TOLL scanning page

After that, the iUAT will try to synchronize with the selected TOLL frequency. This process may take a few seconds to complete (Figure 21).

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

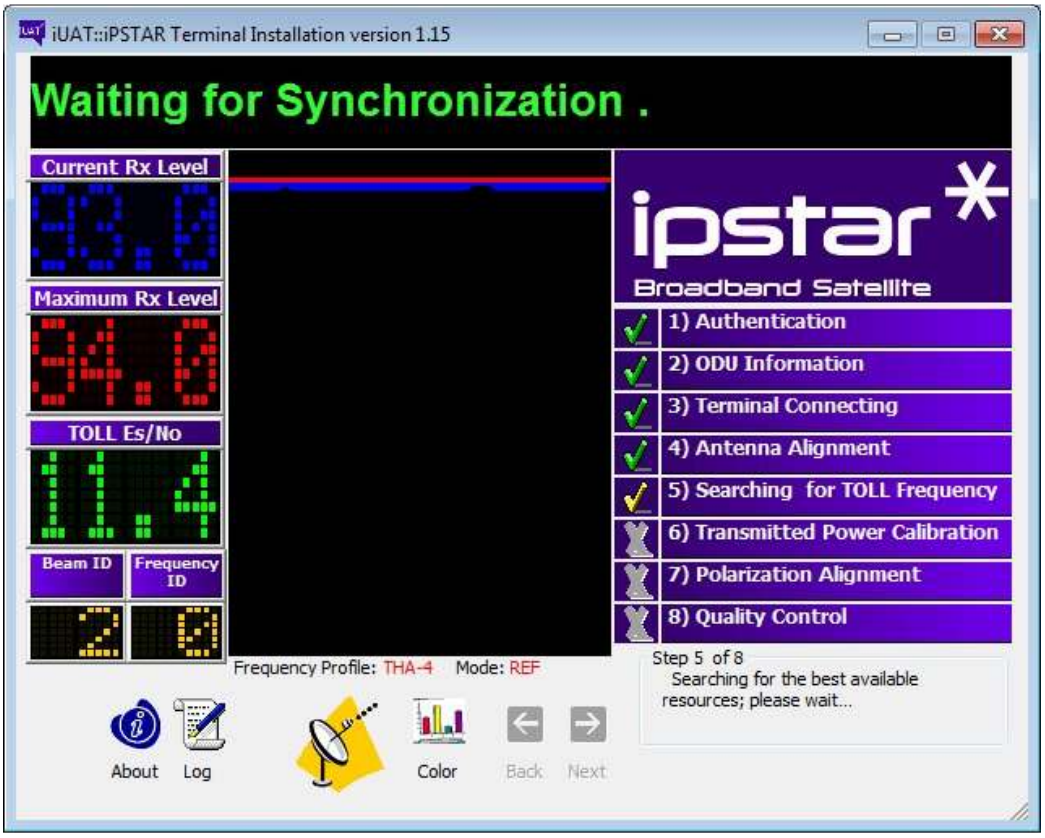

Figure 25 Waiting for TOLL synchronization

Step 6: Transmitted Power Calibration

Then the iUAT will search for the UAT channel (Figure 22). If the iUAT reports "No UAT channel" or "Found UAT channel" and stuck at this step for a long time, contact gateway operator.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

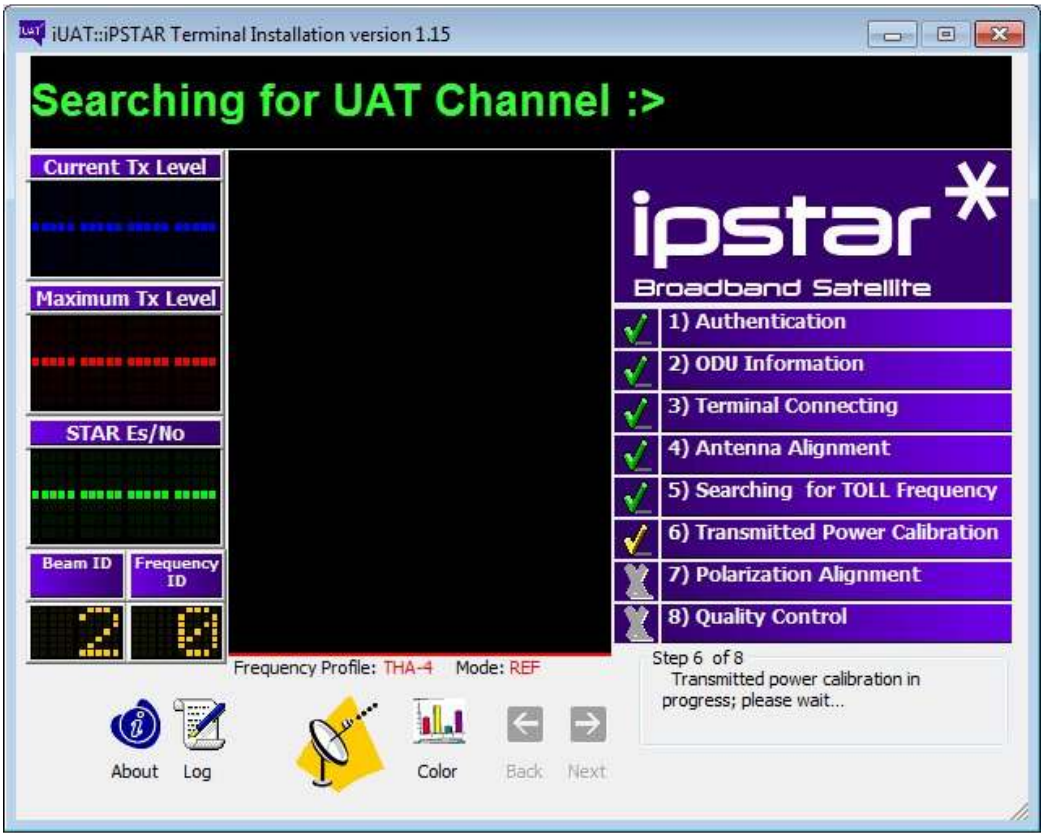

Figure 26 iUAT is searching for UAT channel

After the iUAT found the UAT channel, it will search for the logon frequency and send the logon message to the TIS server (Figure 23).

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

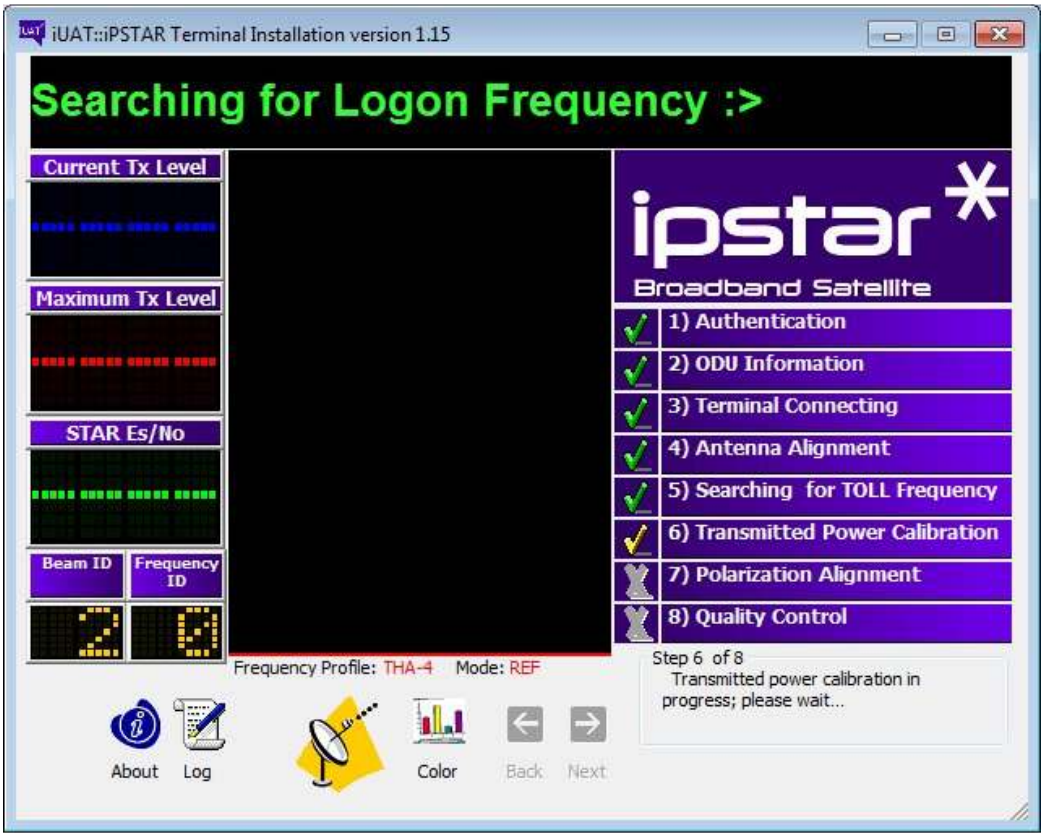

Figure 27 iUAT is searching for logon frequency

During this step, if you have entered authentication information in Step 1, User Terminal will sent this information to the gateway for authentication.

If the authentication is “fail”, the following error messages may occurr “Logon Rejected”, “Invalid Installer ID”, “Incorrect Password”, “Installer ID Expired” , “Job ID is closed” ,etc. In this case, you should restart the program and re-enter the authentication information, or contact the gateway operator for assistance. See more information on Section 6 “Troubleshooting”.

if the authentication is “pass”, the iUAT program will continue to calibrate the transmitted power (Figure 24).

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

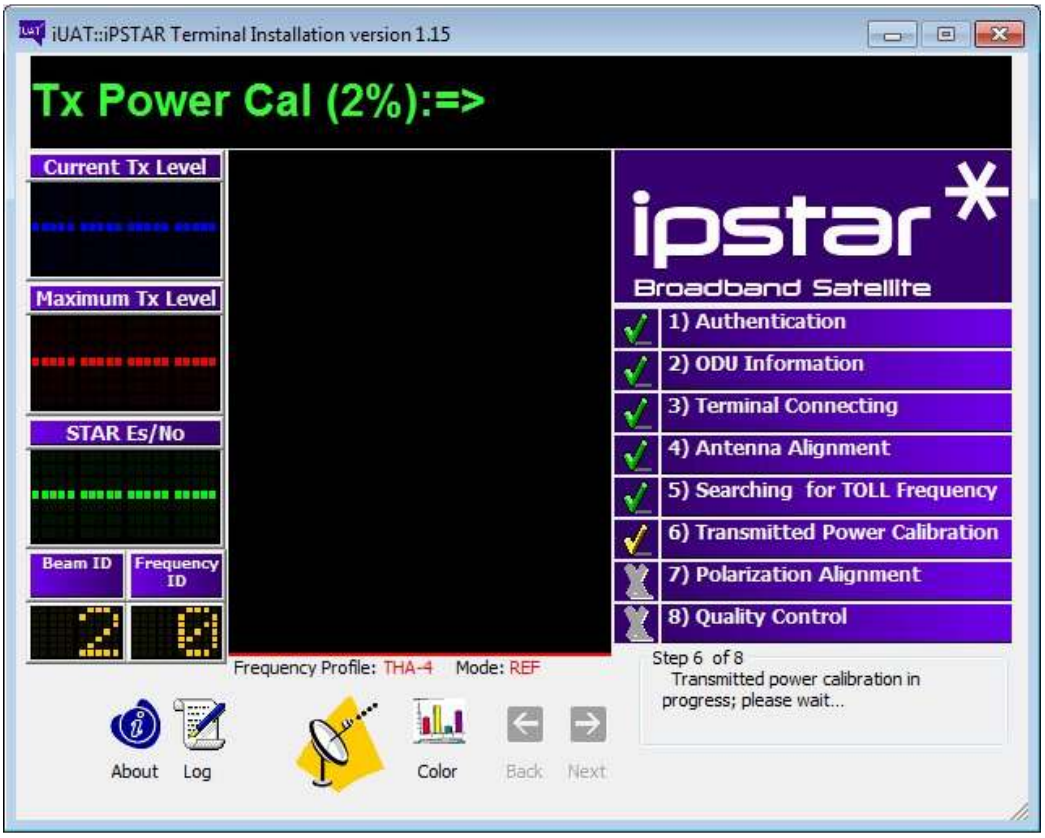

Figure 28 iUAT is calibrating the transmitted power

Step 7: Polarization Alignment

After the TX power calibration is completed, the program will continue to Step 7 (Figure 25). At this step you need to adjust the antenna polarization to match with the transmission from satellite. After finish, click "Next" to continue to Step 8.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

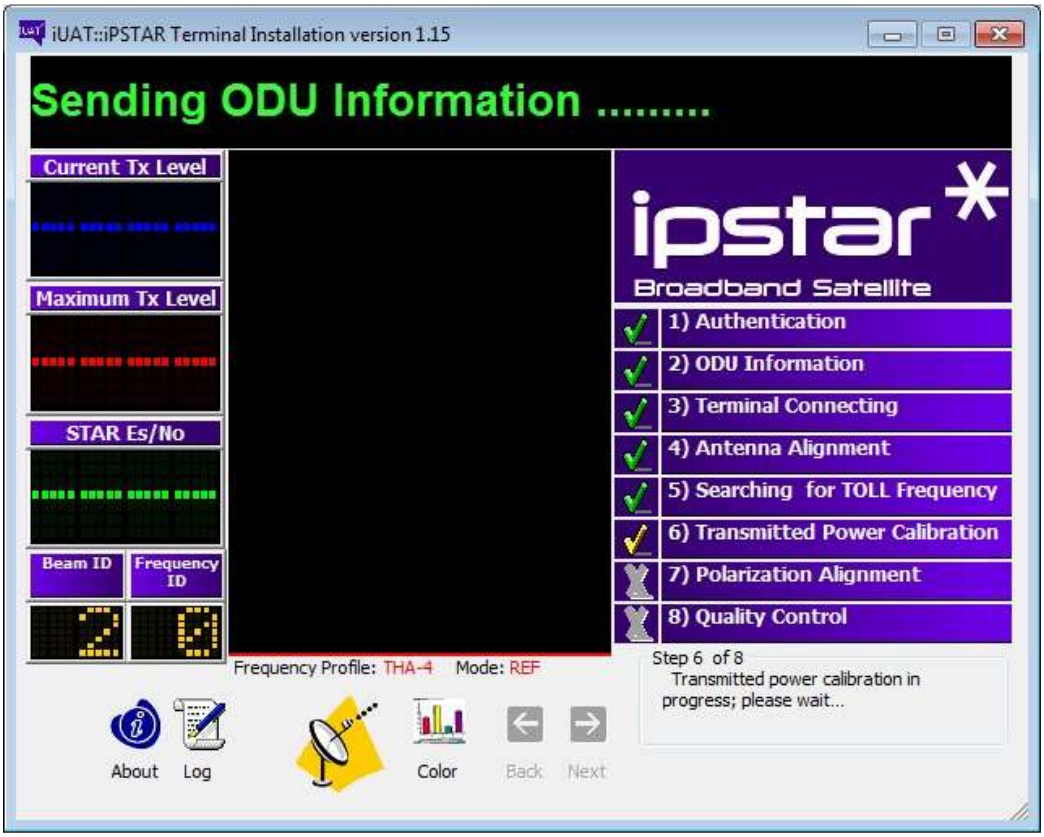

Figure 29 Polarization alignment page

At this point, you will be asked to submit the test results to the UAT QC process, click "Yes" to submit the results to the QC (Figure 26).

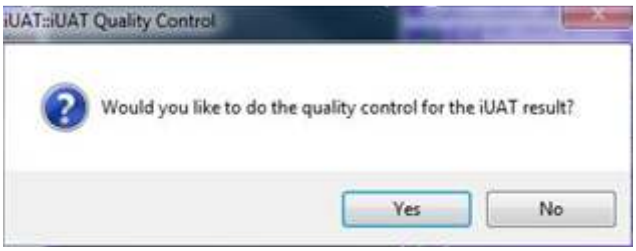

Figure 30 UAT quality control dialog

Step 8: UAT Quality Control

At this point, the summary for the reference cable test result will be displayed (Figure 27). The iUAT will record all setting parameters and keep them for the actual cable mode installation.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

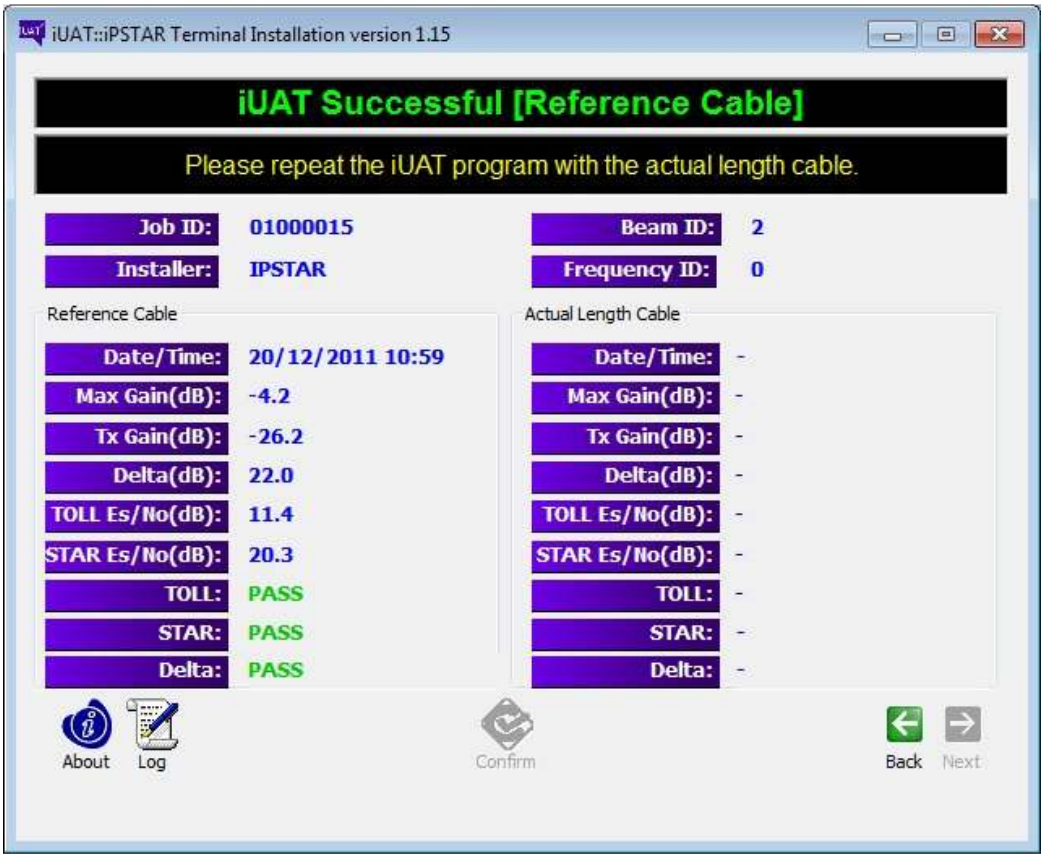

Figure 31 iUAT Report page

Continue with Actual Cable Mode Installation After Reference Cable Mode

After you completed with the reference cable, you need to continue with the actual length of cable with installing Tx attenuator and re-run the iUAT program. The iUAT will prompt you to select the job to do the UAT with the actual cable mode (Figure 28).

Figure 32 List of existing jobs which pass reference cable mode

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Select the existing job ID from the list box i.e. "0100015" and click "Next" to continue. If you did not complete the UAT with the reference cable you will not see this item.

*Note: ***For Japan process****, please add Tx and Rx attenuators before starting iUAT in actual length cable.*

The iUAT will move forward to Step 2 and use the previous ODU parameters from the reference cable mode. At this point, you need to specify the cable type, length and MFG for the actual cable (Figure 29).

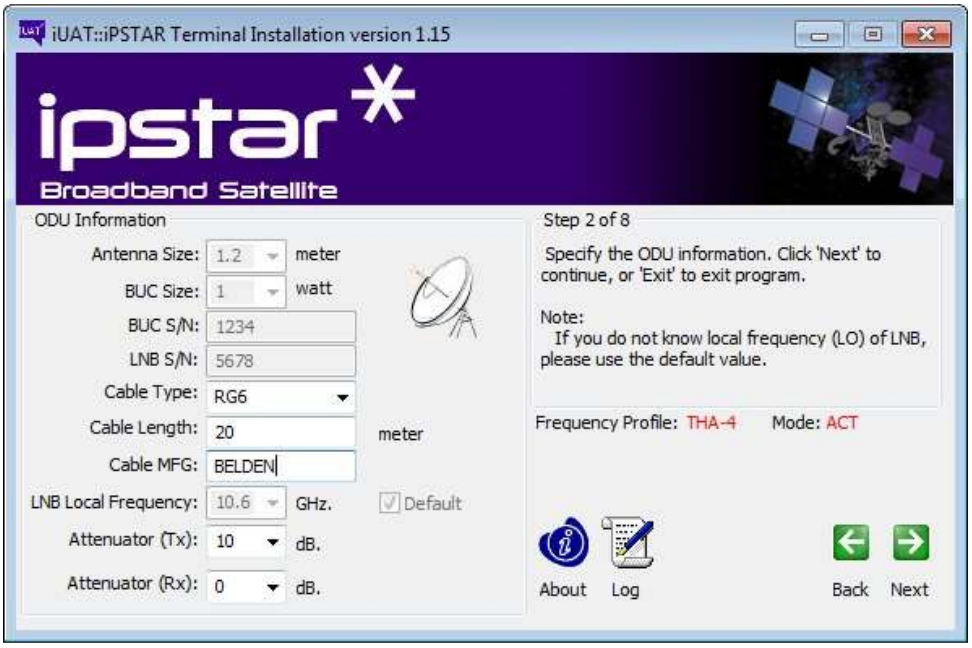

Figure 33 ODU information page for actual length cable mode

After complete, click "Next" to continue to Step 3. From Step 3 to Step 8, please follow the following flow chart (Figure 30) for step 4 through step 6.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

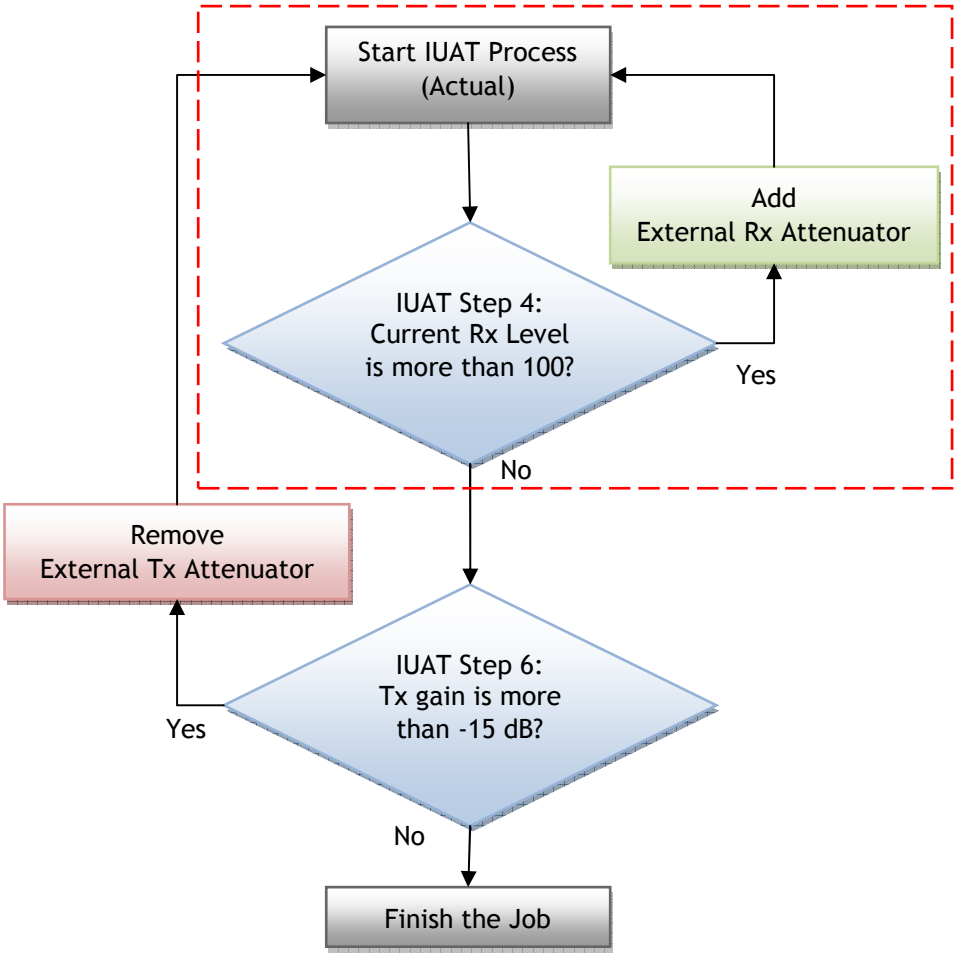

Figure 34: Highlight of Rx external attenuator flowchart

Some UTs might obtain current Rx level more than 100, IUAT will not proceed to the next step. Rx signal strength saturated message [ERR-20] will be displayed (Figure 31).

To solve this problem, terminate IUAT by clicking 'OK' , turn UT off and then add external Rx attenuator between SAT Rx port of IDU and LNB (Figure 32). Then, turn UT back on again and rerun IUAT

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

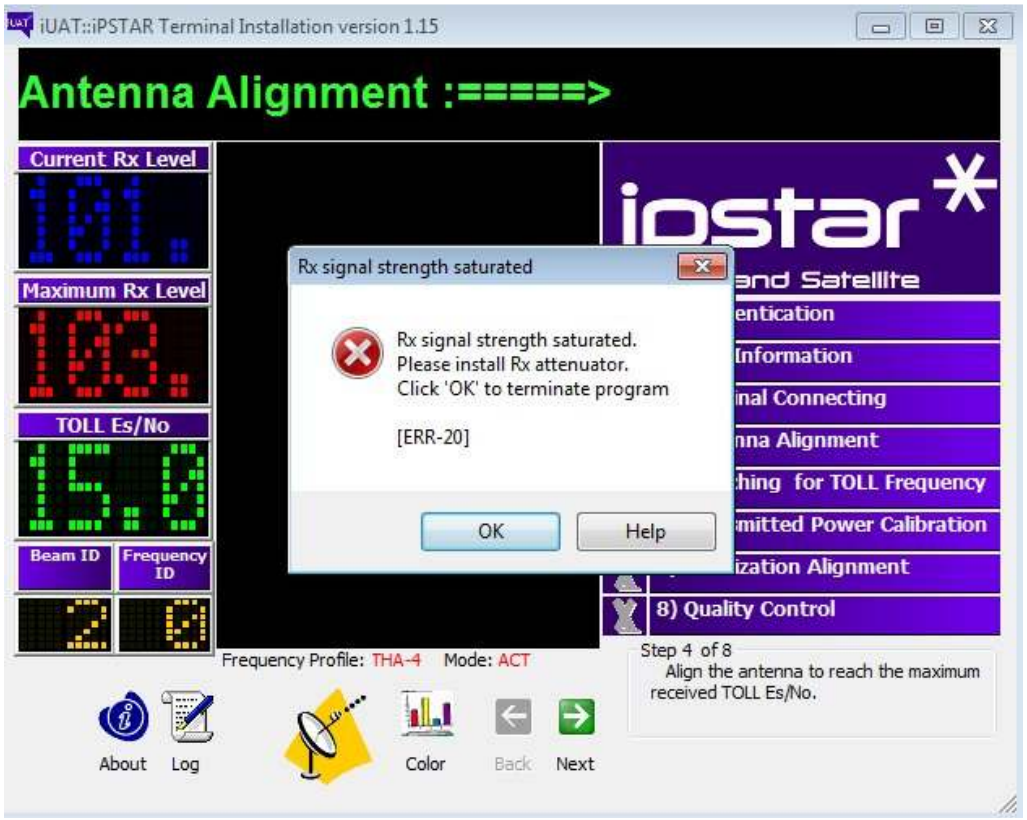

Figure 35: [ERR-20] message

Figure 36: How Rx external attenuator is connected with Sat Rx port of IDU

Once step 4 has completely passed, step 5 and 6 will be continued accordingly. Please follow highlight area of flow chart (Figure 33) for Tx gain checking at step 6.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

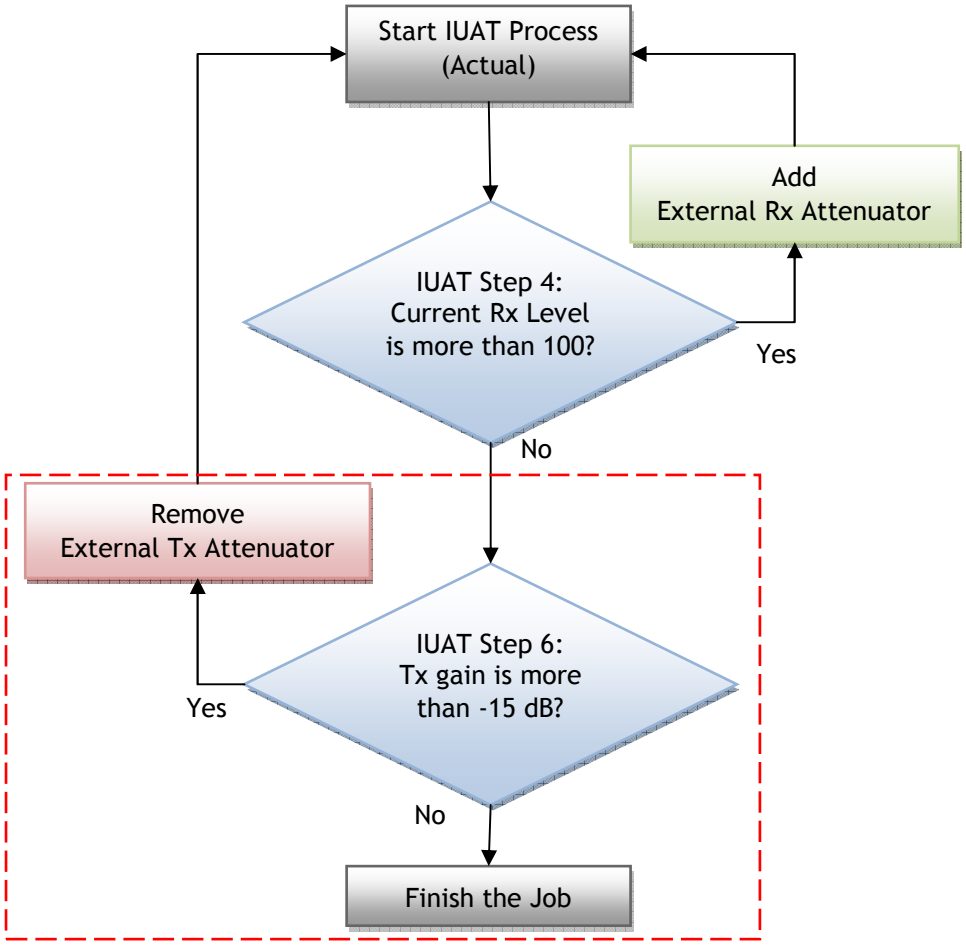

Figure 37: Highlight of Tx external attenuator flowchart

After Tx power calibration step, some UTs might obtain Tx gain more than recommended values. [ERR-26] will be displayed (Figure 34). IUAT will ask installer to terminate the program. Click 'OK' to terminate and then turn off the UT. Installer needs to remove external Tx attenuator between SAT Tx and BUC (Figure 35) below.

Turn on UT and rerun IUAT once finished the above instruction.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Figure 38: [ERR-26] message

Figure 39: How remove Tx external attenuator with Sat Tx of IDU

IUAT will guide you to step 7 when you have passed step 6. Continue on this step by clicking on 'Next'.

At Step 8, after submission of the results to the UAT QC, the "Confirm" button will appear (Figure 36). You have 60 seconds to click on this button to confirm the results.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

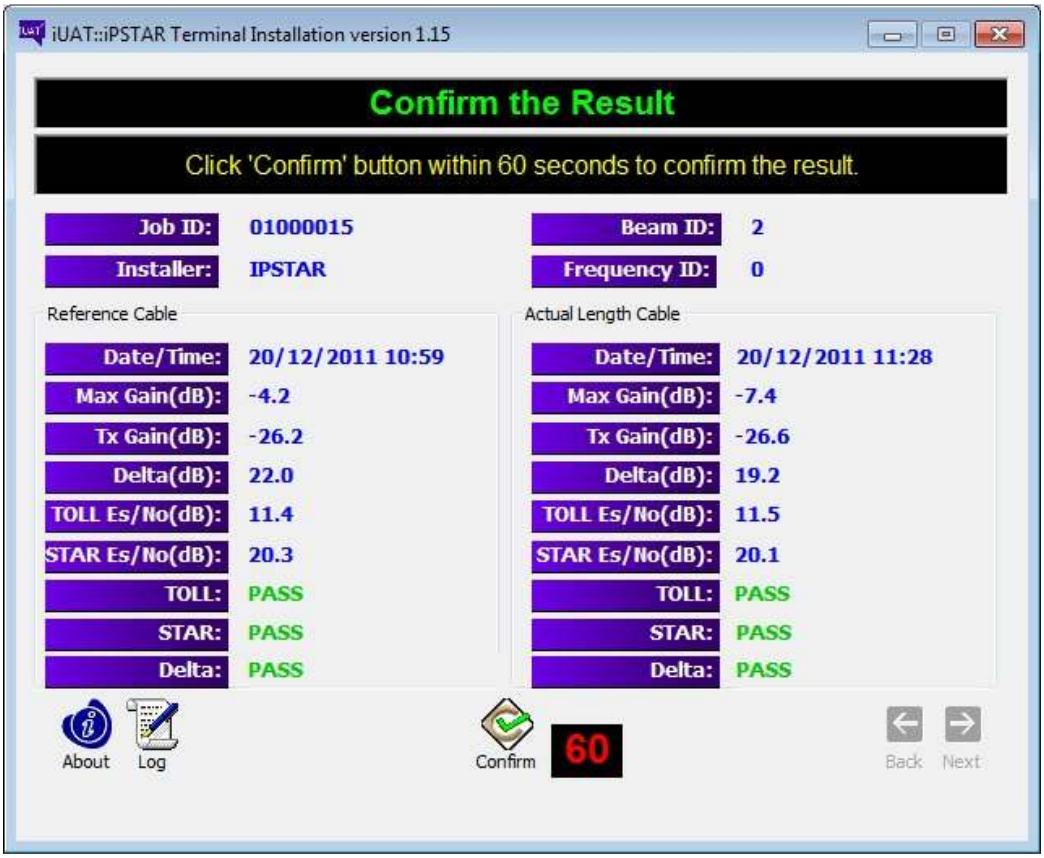

Figure 40 iUAT is waiting for the confirmation of the UAT result

After the “Confirm” button is clicked, the job will be terminated and the User Terminal will be activated for IPSTAR service (Figure 37).

If you do not click the “Confirm” button within the time limit, the UAT process will not be complete and you have to re-do the UAT again with the same job.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

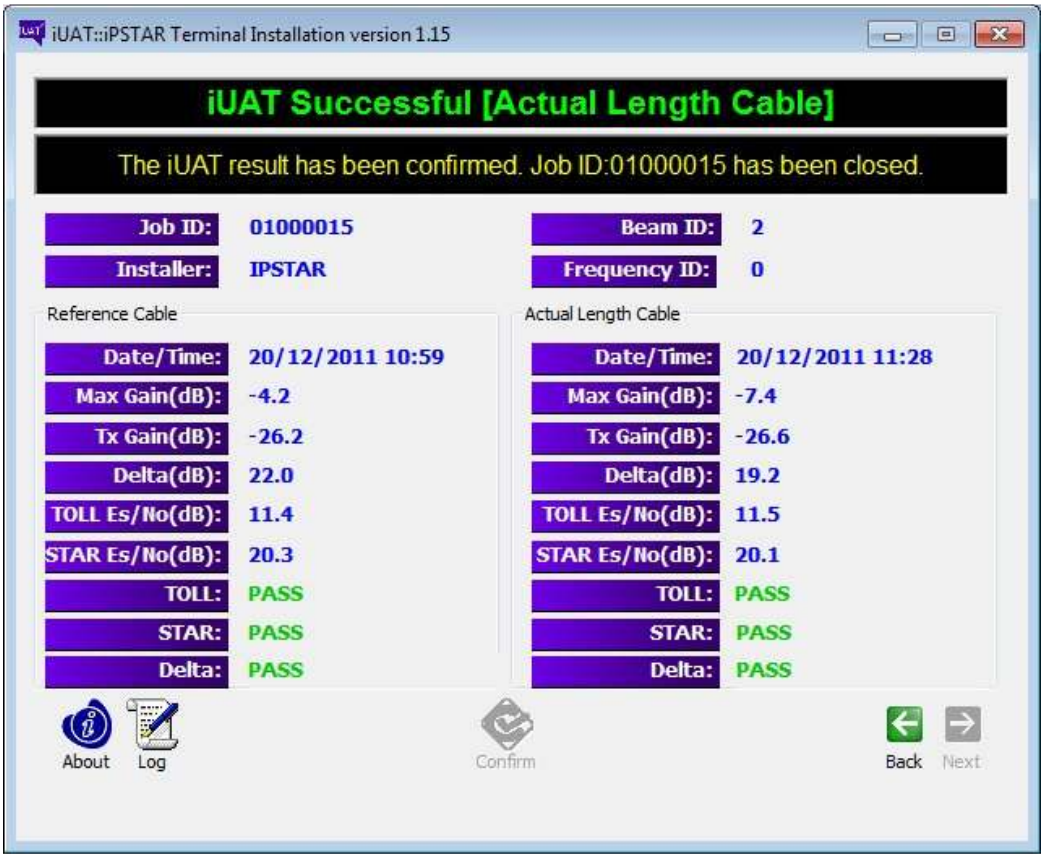

Figure 41 The confirmation is successful

Note: Ignoring the confirmation of UAT results, the terminal will not be activated and not usable for IPSTAR service.
Note: The iUAT will enable the UT to logon the gateway automatically after the successful pass of Step 8. There is no need to reboot the box.

5 ALL FEATURES IN IUAT VERSION 1.15

5.1 Operating System Compatibility

The operating system supported are:

- Microsoft Windows XP
- Microsoft Windows 7 (32-bit)
- Microsoft Windows 7 (64-bit)

5.2 Multi-Language Support

The current languages supported are:

- English
-Chinese
-Japanese
-Thai

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

5.3 ODU Information

The iUAT program now supports 2.4m antenna size.

5.4 Resizable Diaglog

Now you are able to resize the program dialog by placing the mouse cursor over the edge of the dialog box to adjust the size.

Figure 42 Resizable dialog

5.5 External Tx Attenuator Installation Warning

In case that the installer did not install Tx attenuator in actual cable mode, and the obtained Tx gain during Step 6 Transmitted Power Calibration is less than required value, iUAT will asks installer to install Tx attenuator.

Now the iUAT will provide choices to the installer whether to install the Tx attenuator immediately or after completion of iUAT program. This is applicable to the gateway since TIS version 4.1.1. (Fix warning), TIS 4.1.2 or newer vesion can configurable on GW.

The warning message is shown in Figure 39.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

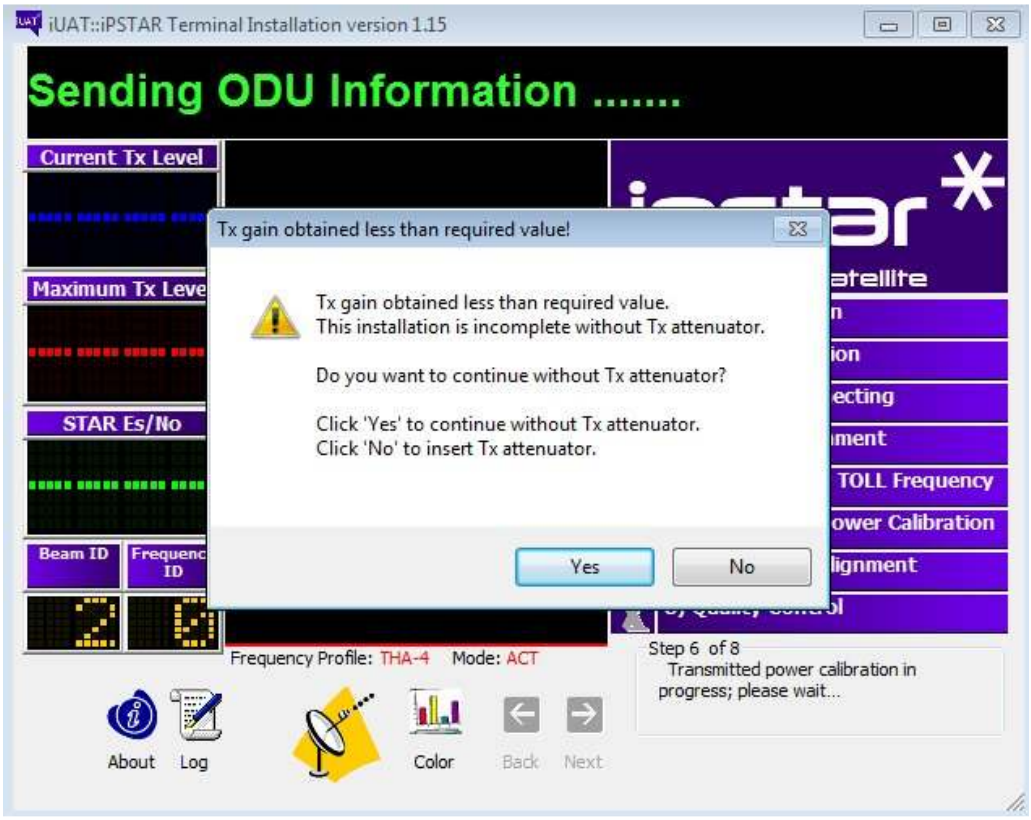

Figure 43 Add External Tx attenuator warning

- To install external Tx attenuator now, click 'No' to end program. A confirmation message in Figure 39 will appear. Click 'OK' to terminate program and then turn off the IDU.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

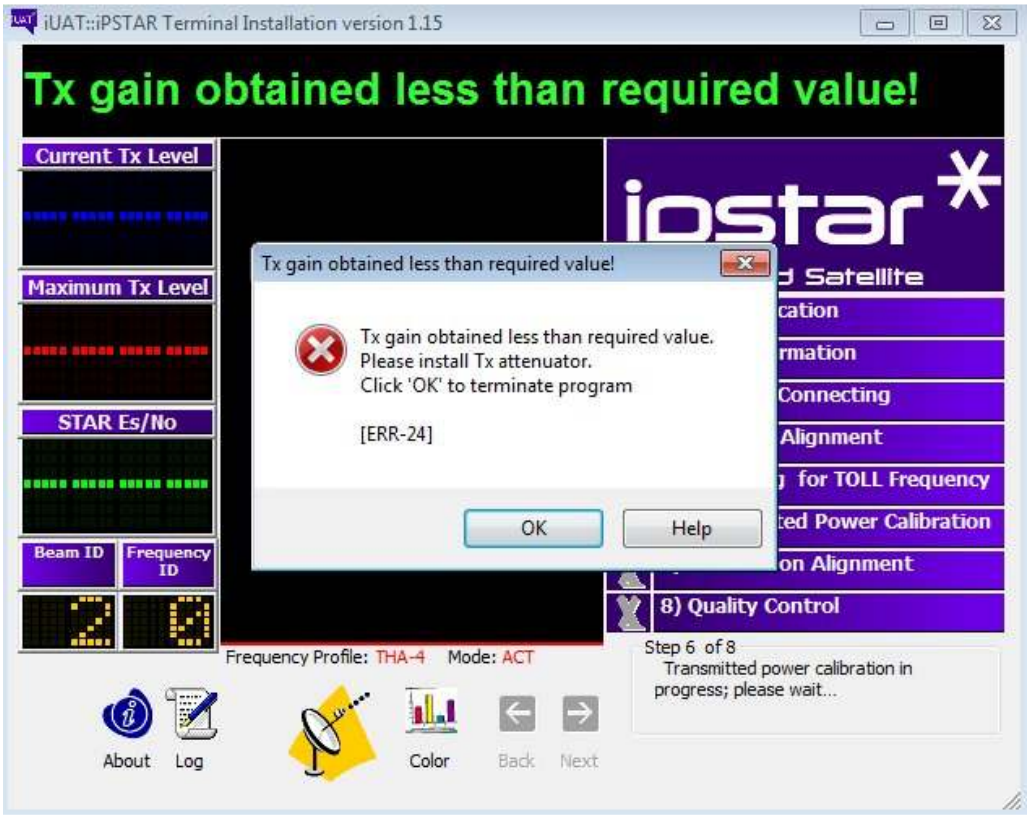

Figure 44 Program is terminated for external Tx attenuator insertion

- Then install external Tx attenuator between SAT Tx and BUC as in Figure 41, and turn on IDU to re-run iUAT process again.

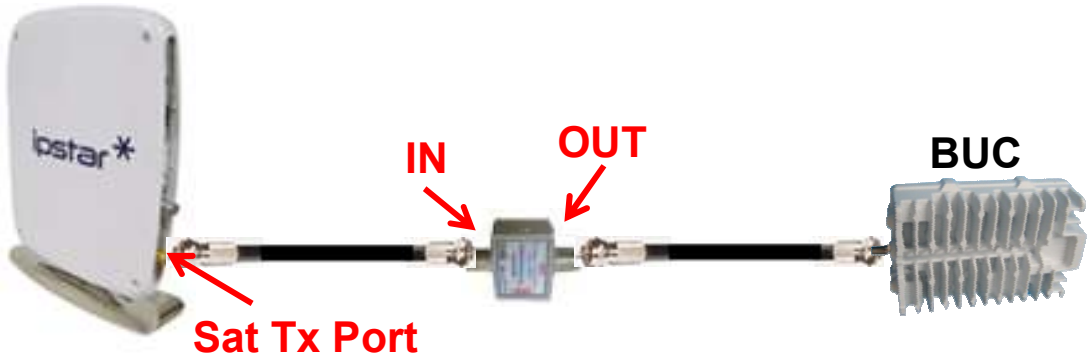

Figure 45 External Tx attenuator installation

- To install external Tx attenuator later, click 'Yes' to continue with iUAT program.

If the installer chooses to install external Tx attenuator later and click "Yes" at the warning message in Figure 39, the program will continue.

If the installer skips the Tx attenuator installation, after clicking "Confirm" the iUAT result in Step 8, a scrolling reminder message will be displayed at the bottom of the page to prompt the installer with the following message, "Dear Installer, This installation requires Tx attenuator. Kindly note that this installation may be considered as **incomplete**

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

without Tx attenuator and therefore, it is recommended to add Tx attenuator at the earliest." (Figure 42).

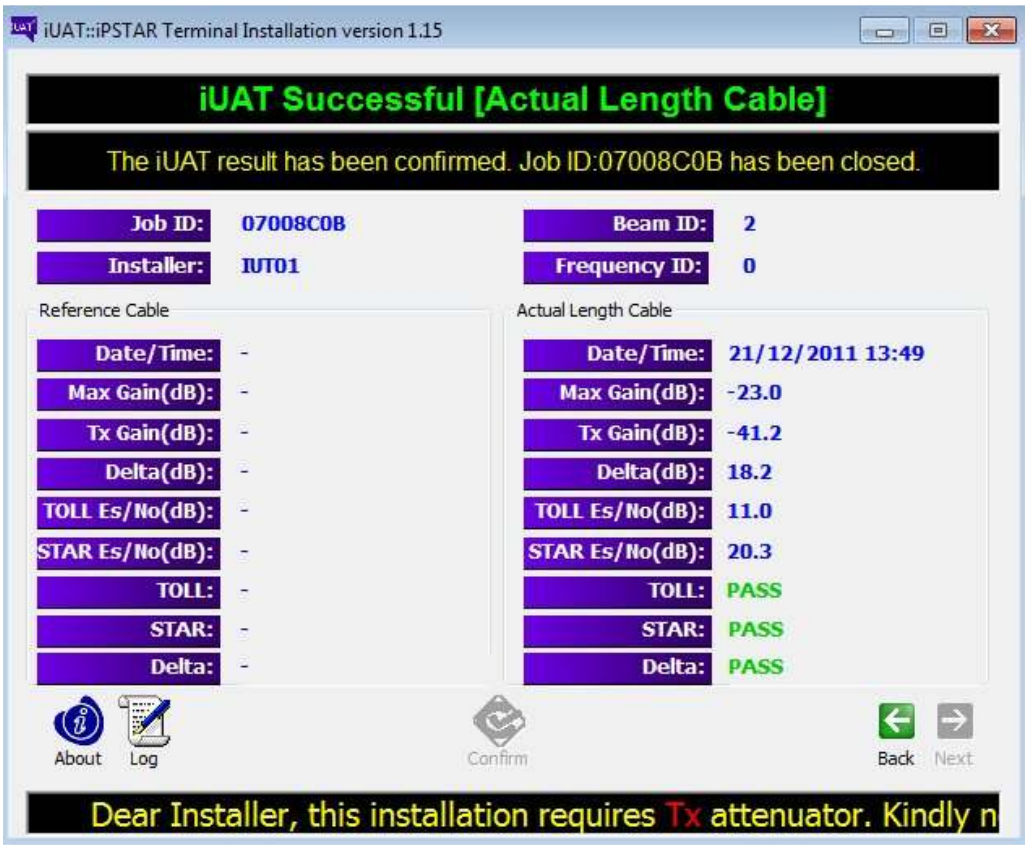
iUAT::iPSTAR Terminal Installation version 1.15
iUAT Successful [Actual Length Cable]
The iUAT result has been confirmed. Job ID:07008C0B has been closed.
Job ID: 07008C0B
Beam ID: 2
Installer: IUT01
Frequency ID: 0
Reference Cable
Actual Length Cable
Date/Time: - | Date/Time: 21/12/2011 13:49
Max Gain(dB): - | Max Gain(dB): -23.0
Tx Gain(dB): - | Tx Gain(dB): -41.2
Delta(dB): - | Delta(dB): 18.2
TOLL Es/No(dB): - | TOLL Es/No(dB): 11.0
STAR Es/No(dB): - | STAR Es/No(dB): 20.3
TOLL: - | TOLL: PASS
STAR: - | STAR: PASS
Delta: - | Delta: PASS
About
Log
Confirm
Back
Next
Dear Installer, this installation requires Tx attenuator. Kindly n

Figure 46 Reminder message to install external Tx attenuator

5.6 iUAT option

Figure 47 IUAT option dialog

5.6.1 Check UT's configuration

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

In case of the use select this option, IUAT will check UT's configuration before perform "Hardware initialization". If "Rx Frequency (L-Band)" in current UT configuration is the same parameter value as current Frequency profile in IUAT, IUAT will proceed to next step without "Waiting Profile Setting" (UT rebooting).

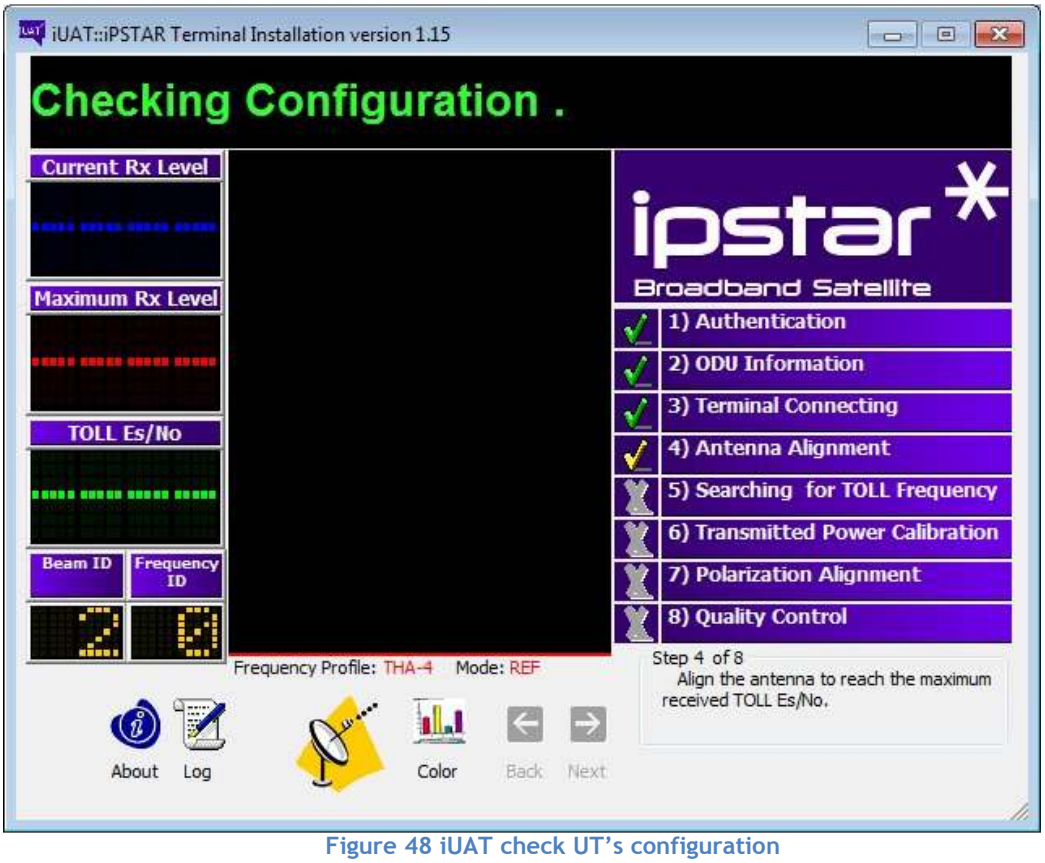

Figure 48 iUAT check UT's configuration

5.6.2 Skip TOLL scanning feature

In case of two beam overlap, if JobID was created by more one beam, iUAT will always scan TOLL frequency in all beams spends long time. This option provide choice for user to default beam from JobID and do not scan other beam.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

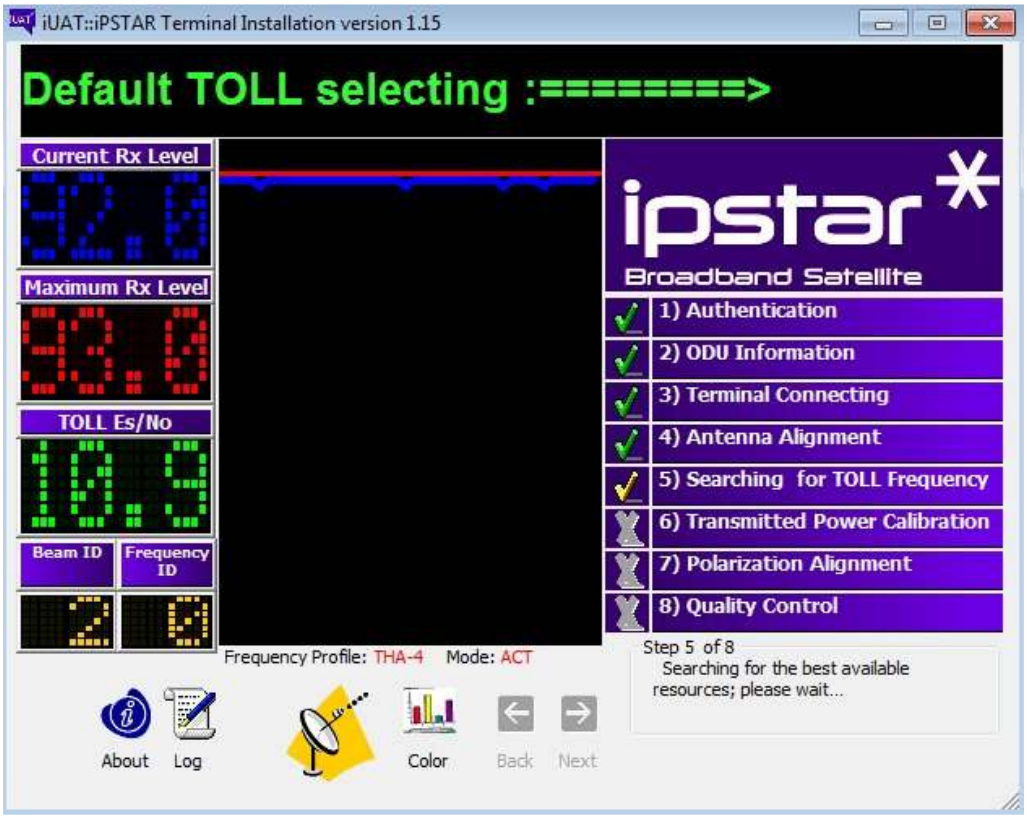

Figure 49 iUAT skip toll scanning

5.6.3 Median filter in Antenna alignment step

To get rid of overshoot/undershoot signal, iUAT provides this option to smooth signal and do not fluctuation.

Median (in mathematic) was defined by the numerical value separating the higher half of a sample from the lower half. if a < b < c, then the median of the list {a, b, c} is b, and, if a < b < c < d, then the median of the list {a, b, c, d} is the mean of b and c; i.e., it is (b + c)/2.

Define “N” in iUAT program is “Number of population data”

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Figure 50 Example case without median filter

Figure 51 Example case with median filter

5.6.4 Expand TOLL tracking frequency range

According to solve the LNB frequency shifting problem, iUAT provides option to expand TOLL tracking frequency range to 1MHz. The procedure of iUAT frequency shifting are:

1. Start with F0.
2. If F0 cannot synchronization, change to F0 + 500K.
3. If F0 + 500K cannot synchronization, change to F0 – 500K.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

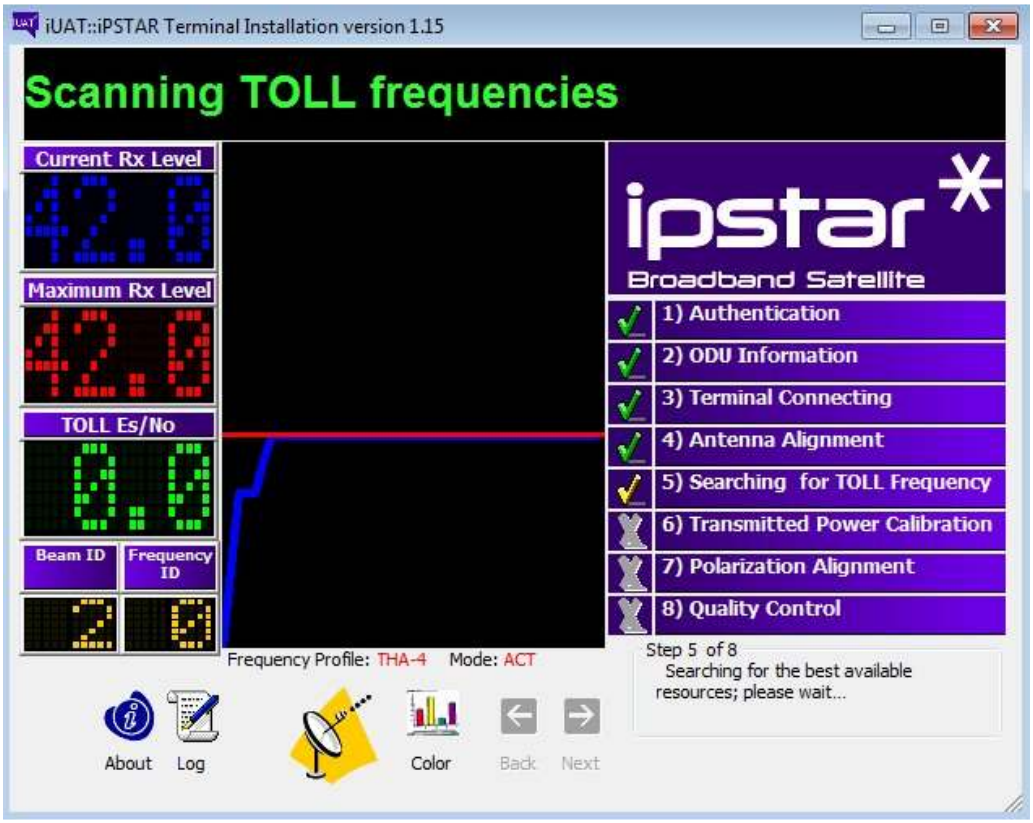

Figure 52 Expand TOLL tracking frequency range

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

6 TROUBLESHOOTING

Table 1 iUAT Software v1.15 Error Codes

Error No.	Pop-up message on iUAT software
ERR-01	Connection failed.
ERR-02	Connection failed.
ERR-03	Connection failed.
ERR-04	UAT channel not found
ERR-05	Connection failed.
ERR-06	Action timeout. The iUAT program will be terminated.
ERR-07	Some file is missing. Please re-install the iUAT program.
ERR-08	UAT logon request was rejected
ERR-09	There is no information for the job. Please contact SP NOC.
ERR-10	You are using an unauthorized UT
ERR-11	Incorrect antenna size
ERR-12	Incorrect BUC size
ERR-13	You are using the closed job
ERR-14	Out of scope location
ERR-15	You are doing iUAT outside specified location.
ERR-16	You are using an invalid iUAT software type
ERR-17	No response from logon frequency
ERR-18	Hardware Initialize timeout
ERR-19	Cannot synchronize with frequency
ERR-20	RX signal strength saturated. Please install Rx attenuator.
ERR-21	No UAT Channel available at this time. Please try again later.
ERR-22	Error while finding upper gain.
ERR-23	This iUAT version is obsolete. Please download new version from iPSTAR web site.
ERR-24	Tx gain obtained less than required value. Please install Tx attenuator.
ERR-25	Tx gain obtained is still less than required value. There is no difference from previous iUAT record. Please replace with the correct attenuator and redo iUAT.
ERR-26	Tx gain exceeded! Please remove Tx attenuator and redo iUAT.

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Error No.	Pop-up message on iUAT software
ERR-27	The polarization alignment timeout. Click 'OK' to terminate program.
ERR-28	Polarization No Response
ERR-29	Error while finding lower gain.

*Note that please refer to “Troubleshooting Guide for IUAT1.15”

COPYRIGHT © Thaicom PLC 2010. All rights reserved.

Copyright © 2010 Thaicom Plc. All rights reserved.

This document is on a confidentiality basis, not to be disclosed to any person not bound by this document, No part of this document or its content may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any mean. No warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. While reasonable efforts have been made to assure the accuracy of this document, Thaicom Plc and its Subsidiaries shall not be liable for any errors contain herein or from the use of this document. No license is granted under this document. The information in this document is subject to change without notice.